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ABSTRACT

The results of administration of the Washington Pre-College Test (WPCT) to a statewide sample of eleventh-grade public high school students during March of 1985 are reported. In addition to the test results, supporting information is reported on the students, including grades, credits earned, courses taken, academic and career interests, and academic and occupational expectations. The WPCT is a comprehensive career planning/guidance and college admissions/placement tool developed more than 30 years ago for use with Washington high school students. Data on 1,562 high school juniors are presented; the subjects represent a cross section of high school students in Washington. Results are provided on percentile equivalents and frequency distributions of test scores and grade point averages (GPAs), WPCT composite scores and overall GPA means, high school GPAs by subject area, students' final educational goals, comparisons with national Scholastic Aptitude Test data, high school credits earned, vocational interest inventory scores, student work experience, enrollment in advanced placement and accelerated and honors programs, participation in extracurricular activities, college choice factors, and percentile equivalents of WPCT combined composite scores. Twelve data tables and eight figures are provided. (TJH)

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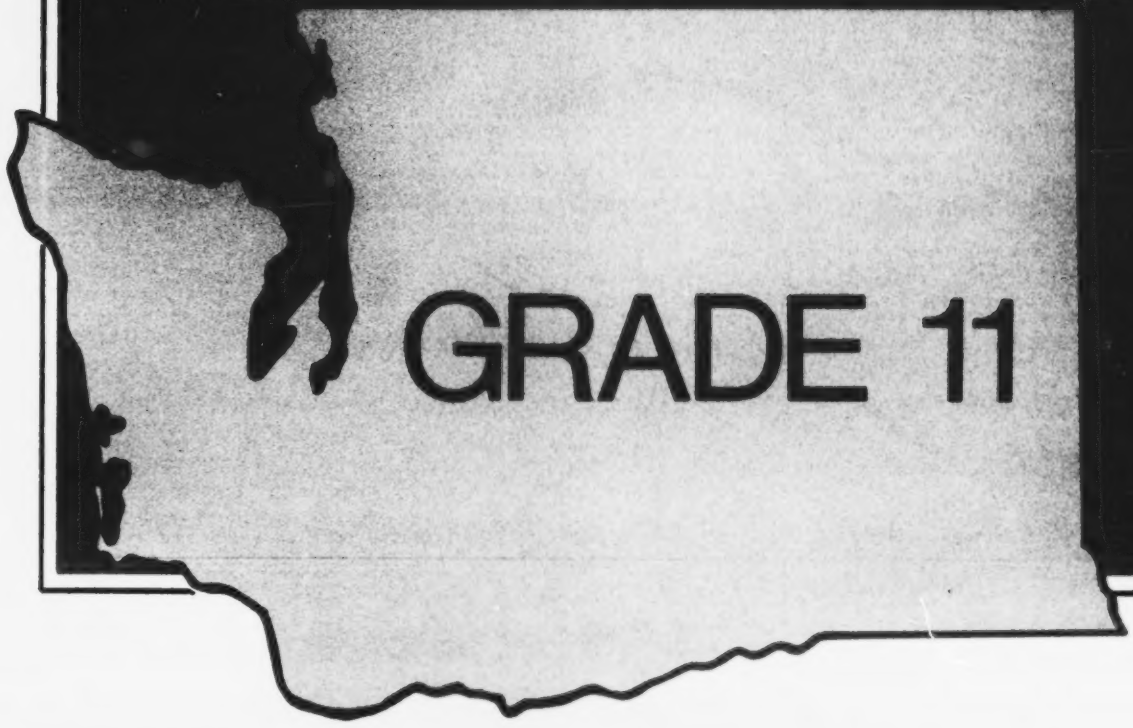

GRADE 11

SPRING, 1985

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WASHINGTON STATE TESTING PROGRAM
GRADE 11
SPRING, 1985

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PREFACE

March, 1986

The following report describes the results for a statewide sample of grade 11 Washington public high school students who were administered the Washington Pre-College (WPC) Test in the spring of 1985. The testing was conducted under a contract with the WPC Program. In addition to the actual test results, other information was also collected about the students including high school grades, credits earned, courses taken, academic and career interests, and expectations for education or work after high school.

The WPC Test is a comprehensive career planning and guidance tool developed more than 30 years ago for use with Washington high school students. The results are also used for admissions and placement by colleges and universities in Washington and other nearby states. As a guidance and planning tool, the WPC Test is designed to measure and summarize individual characteristics that are related to success in various occupations and education programs.

More than 26,000 Washington high school students take the WPC Test each year. However, these students are mostly college bound and do not represent a random sample of all high school students. Therefore, the major reason for using the WPC Test as a part of the Washington State Testing Program was to establish state level norms that would represent a cross section of high school students and would enhance the WPC Test's usefulness for all students regardless of their post high school plans. The results described in this report do indeed indicate that the WPC Test can provide valid information for nearly all students, not just the college bound.

The Office of State Superintendent was pleased to have the assistance of the WPC Program and the professional expertise and experience of the WPC Program staff were important factors in the success of this important effort.

Frank B. Brouillet
State Superintendent
of Public Instruction

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HIGHLIGHTS

- Most of the information reported has not been available previously on representative, statewide populations; e.g., GPA and standardized credit summary data compiled from official student transcripts for grades 9-11.

- The median, cumulative overall GPA earned by Washington public high school students in grades 9-11 was 2.72. Average high school grades were highest in elective courses and lowest in math and science courses (p. 5).

- Overall high school GPAs for females were higher than for males. Grades were positively related to students' educational goal levels for both sexes (p. 9).

- Males outperformed females on the WPC Quantitative Composite measure, but females tended to be superior on the Verbal Composite measure. Scores on both of these standardized test measures were also positively related to students' educational goal levels (pp. 9-12).

- Females' high school GPAs were higher than males' in every academic subject area. This observation with respect to grades in mathematics runs counter to male superiority on the WPC Quantitative Composite test measure (p. 14).

- The final educational goal levels of males and females were nearly identical. Overall, 93 percent of these students entertained plans to enroll in a formal vocational training or advanced education program sometime after completing high school (p. 15).

- The number of high school credits earned by subject area tended to be related to sex and to educational goal level (p. 17).

- The extent and type of work experience reported by students differed according to sex and educational goal (p. 19).

- Enrollment in advanced placement and honors courses was much more frequent among males than among females in all subjects except English and languages, and was positively related to educational goals for both sexes (p. 21).

- In general, students with higher educational goals tended to participate in more extra-curricular activities. Sex differences varied by activity, but females were usually the more active participants (p. 23).

- Twenty-three percent of the students believed that they would enroll directly in a public research university in Washington (University of Washington or Washington State University) or in another state (p. 24).

- The most important factor to the students in selecting a college was the quality of instruction and instructional facilities offered. The quality of intercollegiate athletic teams was perceived as being one of the least important factors. Most students also preferred institutions with balanced curriculums and diverse student bodies (pp. 25-26).

OVERVIEW

During the 1984-85 school year, the Office of State Superintendent of Public Instruction (OSPI) contracted with the Washington Pre-College Program (WPC) to conduct a special statewide testing and data collection project with a random sample of public high school juniors. This report contains an overview of that project and summarizes the key findings.

Purpose of the Project

The primary purpose of this study was to portray the population of 1984-85 Washington public high school juniors by collecting a variety of cognitive and affective measures on a representative, statewide sample of these students. Because of the current legislative and public interest in improving students' educational and career planning skills, it was determined that information from a statewide random sample of students would improve the utility of the WPC for all students regardless of their post high school goals. Therefore, the following data were compiled and analyzed:

(1) Actual student GPAs and average standardized credits by subject area in grades 9-11;

(2) WPC subtest and composite score statistics (for use as evaluative norms by schools and districts wishing to test all local juniors);

(3) Estimated Scholastic Aptitude Test (SAT) verbal (V) and math (M) score averages for that subgroup planning to enter four-year postsecondary institutions (a statewide sample roughly equivalent to the national SAT sample);

(4) Students' plans, needs, interests, activities, and other information compiled through the Vocational Interest Inventory and the WPC Registration Questionnaire.

The Sample

A stratified, random sample of 1,800 juniors was identified by name for this project by the OSPI. Handicapped and special education students were excluded. The students in this two-stage sample were selected from 60 public high schools in Washington (an average of 30 students per school). Officials in each of these schools were asked to appoint local project coordinators who assumed responsibility for data collection.

Data Collection

The data for this study were gathered during March of 1985. Standard WPC Test administration procedures were followed by the local project coordinators. The complete WPC Test battery of cognitive and affective instruments was administered to each participant. Because of normal student absences and normal attrition between sample identification and data collection, the actual number of students tested was 1,562 (approximately 26 participants per sample school). This reduction was anticipated and was of insufficient magnitude to compromise the results of the project.

Processing and Reporting

Students in this special representative sample were processed by WPC as if they were part of the regular WPC spring testing group. Their WPC Preliminary Test Score Reports were generated and returned to schools in late March or early April. Grade 9-11 transcripts for these students were collected from their schools during the summer of 1985 for standardization and summarization by WPC. Complete Student Guidance Reports were generated and provided to sample members in September, along with copies of the 1985-86 WPC Student Career Planning and Interpretation Guide. Local counselors then assisted these students in interpreting their personal results and in using the comprehensive WPC career development and evaluation system.

Analyses

The data collected on this representative sample of 1,562 juniors were subjected to a series of special analyses by WPC. The findings judged to be of major relevance are presented here. A complete data tape was also made available to OSPI so that additional analyses might be conducted by other researchers.

STATE RESULTS

Percentile Equivalents and Frequency Distributions of Test Scores and GPAs

Table 1 provides percentile equivalent norms based on this representative sample for WPC test scores and GPAs in grades 9-11. Percentiles are listed in the extreme left and right columns outside the table. The entries within the left half of the table are standardized scores on the eight WPC subtests and the two WPC composites, as identified in the column headings. The entries within the right half of the table are the overall high school GPAs and the GPAs in six subject areas. These may also be identified by their respective column headings.

The entries in the 50th percentile row in the middle of Table 1 represent the median test scores and GPAs for this special sample. Other entries may be interpreted according to their percentile

TABLE 1. PERCENTILE EQUIVALENTS OF TEST SCORES AND GPAs

PERCENTILE	ENGLISH USAGE	SPELLING	READING	VOCABULARY	VERBAL COMPOSITE	APPLIED MATH	MATHEMATICS ACHIEVEMENT	QUANTITATIVE COMPOSITE	SPATIAL ABILITY	MECHANICAL REASONING	OVERALL	ENGLISH	MATHEMATICS	SCIENCES	SOCIAL STUDIES	FOREIGN LANGUAGES	ELECTIVES	PERCENTILE
99	69	69	68	70	69	67	74	72	67	67	4.00	4.00	4.00	----	----	----	----	99
95	61	64	62	64	62	65	65	66	65	63	3.83	3.88	3.83	4.00	4.00	----	4.00	95
90	56	60	60	59	59	63	62	62	60	61	3.64	3.71	3.50	3.67	3.80	----	3.88	90
85	53	56	56	55	56	59	59	60	58	57	3.52	3.57	3.33	3.50	3.60	4.00	3.79	85
80	52	55	54	52	53	57	57	57	57	56	3.36	3.40	3.13	3.25	3.43	3.75	3.71	80
75	50	53	52	50	51	56	55	55	55	55	3.24	3.29	3.00	----	3.25	----	3.63	75
70	48	52	51	49	49	54	53	53	54	54	3.13	3.17	2.83	3.00	----	3.50	3.55	70
65	47	50	50	47	48	52	51	51	53	52	3.03	3.00	2.67	2.80	3.00	3.25	3.47	65
60	46	48	49	46	46	49	49	49	50	51	2.91	2.89	2.50	2.67	2.80	----	3.38	60
55	45	47	47	44	45	47	47	47	49	50	2.81	2.75	2.33	2.50	2.67	----	3.28	55
50	43	46	44	43	43	46	45	46	47	49	2.72	2.63	2.25	2.33	2.50	3.00	3.19	50
45	--	44	43	42	42	45	44	44	46	46	2.62	2.50	2.17	2.20	2.38	2.75	3.09	45
40	41	43	41	41	40	43	--	43	45	45	2.53	2.33	----	----	2.25	----	3.00	40
35	40	42	40	40	39	42	42	41	41	44	2.42	2.22	2.00	2.00	----	2.50	2.92	35
30	39	41	38	39	38	39	40	39	40	41	2.31	2.10	1.80	1.80	2.00	2.17	2.78	30
25	37	38	36	38	37	38	39	37	39	40	2.22	2.00	1.67	1.67	1.75	----	2.67	25
20	36	37	34	37	35	36	36	36	37	38	2.09	1.80	1.50	1.50	1.57	2.00	2.53	20
15	34	36	32	35	34	35	35	34	36	35	1.97	1.63	1.40	1.33	1.38	1.50	2.39	15
10	33	34	29	34	32	33	32	32	34	34	1.80	1.43	1.20	----	1.20	1.33	2.18	10
5	30	32	26	--	31	29	--	31	31	32	1.54	1.17	1.00	1.00	1.00	1.00	1.88	5
1	29	31	24	33	28	27	31	28	29	31	1.13	0.60	0.40	0.00	0.40	0.00	1.44	1

equivalents. For example, an English Usage test score of 52 corresponds to the 80th percentile. This indicates that 80 percent of the students in the representative sample received scores on this particular test that were less than 52. An overall GPA of 2.42 corresponds to the 35th percentile, indicating that 35 percent of the students in this sample group earned overall GPAs that were lower than 2.42.

The dashed lines which appear in the table are used to denote instances in which no test scores or GPAs exist for a particular percentile. For example, a GPA of 4.00 in foreign languages corresponds to the 85th percentile, for 85 percent of these students have earned language grades under 4.00 (15 percent have earned maximum 4.00 grades). The dashes in the 90th through 99th percentile rows indicate that no corresponding GPAs exist at these levels. More detailed information concerning the interpretation of percentile equivalent tables may be found in the WPC Student Guide.*

Since Table 1 is based on a randomly-drawn statewide sample of Washington public school juniors, the data presented should accurately represent the entire population of these students. Thus, the average (median) overall GPA assigned by public high schools to all Washington students who have completed their junior year is estimated to be 2.72 in grades 9-11. Similarly, the estimated average (median) GPA statewide through grade 11 is 3.19 in elective courses and 2.25 in mathematics courses. Such information is not normally compiled and should be of considerable interest to educators in Washington. The percentile equivalent norms for WPC test scores provided in Table 1 will be extremely valuable to evaluation specialists in those schools and districts that administer the WPC Program to all their juniors.

Frequency distributions of WPC Quantitative Composite scores, Verbal Composite scores, and overall GPAs are shown in Figures A through C, respectively. Notice that the GPA distribution in Figure C is skewed to the left. This may be due in part to the fact that those data represent only those who have successfully completed the first three years of high school. If the grades of students who had dropped out of high school during one of their first three years had also been compiled, this distribution would probably appear more symmetrical in shape.

The WPC composite score distributions in Figures A and B display positive skewness. This was expected, for these tests were developed on samples of students who tended to be somewhat more academically inclined. One of the major questions to be addressed in this study concerned the appropriateness of these tests for the bottom quartile of Washington students. The lack of extreme skewness in Figures A and B demonstrates that the WPC tests have sufficiently low "floors" to provide differentiation among these lower-achieving individuals and are appropriate for use with the general population of all students at the junior or senior level.

*For copies of the Student Guide or other WPC material, write or call the Washington Pre-College Program, 1400 N.E. Campus Parkway, Room 448, University of Washington, PB-20, Seattle, WA 98195. Telephone (206) 543-1792.

FIGURE A. FREQUENCY DISTRIBUTION OF WPC QUANTITATIVE COMPOSITE SCORES

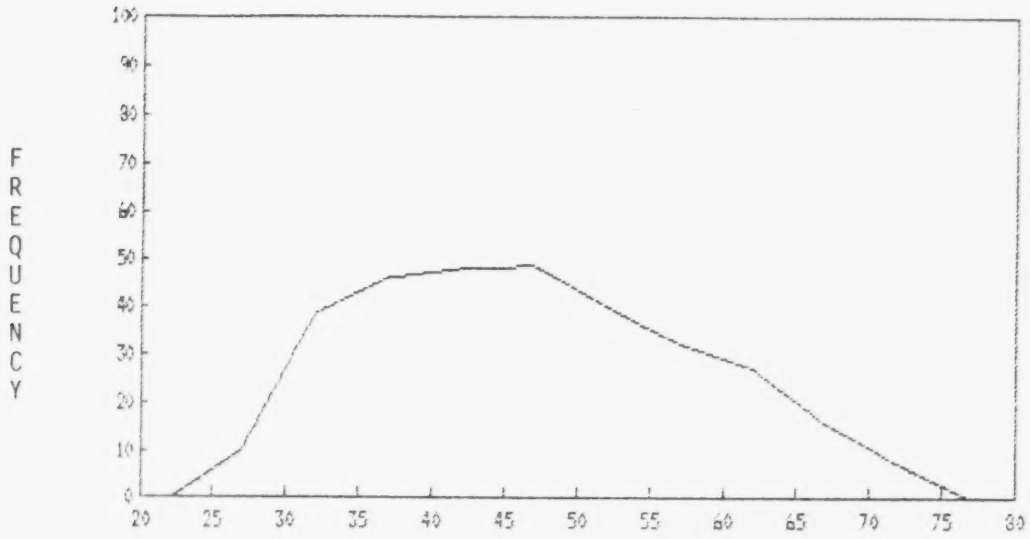


FIGURE B. FREQUENCY DISTRIBUTION OF WPC VERBAL COMPOSITE SCORES

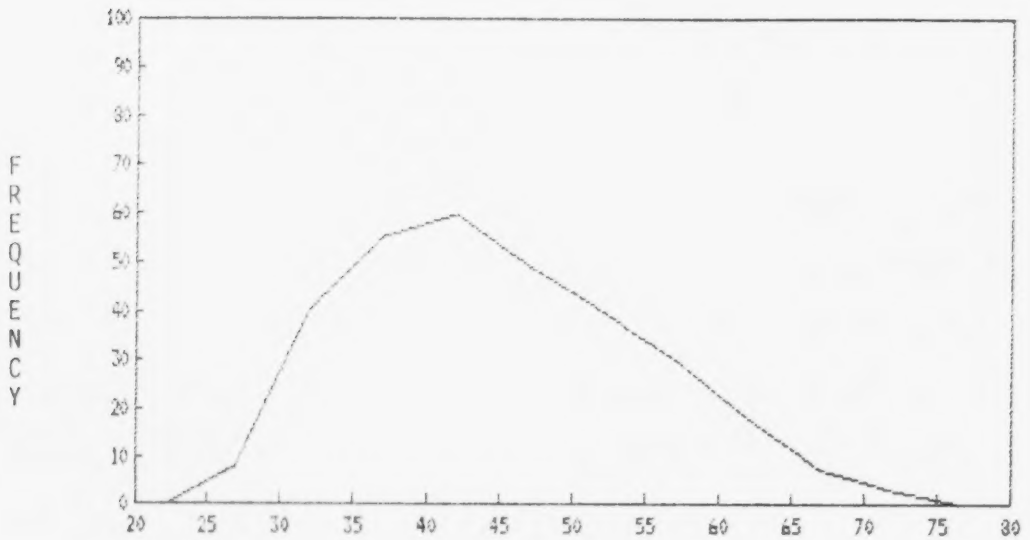
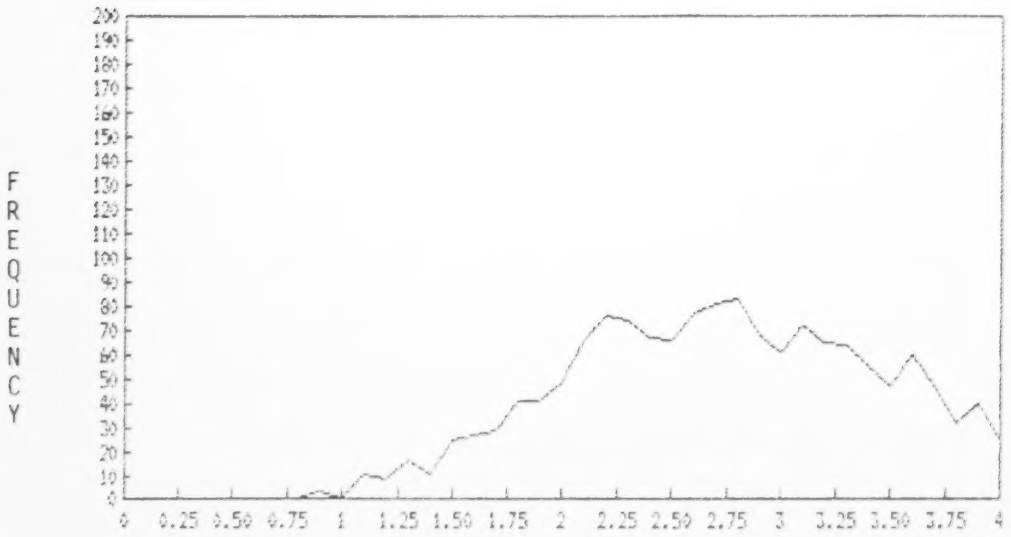


FIGURE C. FREQUENCY DISTRIBUTION OF OVERALL HIGH SCHOOL GPA



WPC Composite Scores and Overall GPA Means

In Table 2, means and standard deviations (shown in parentheses beneath each mean) are used to summarize students' overall GPAs, Verbal Composite (VC), and Quantitative Composite (QC) scores according to sex and educational goal. The first seven titles in the extreme left column abbreviate the final educational goals indicated by students when they registered for the WPC Program.

The statistics which represent all the students in this sample have been underlined in the final three columns of the total sample row. The overall means presented in Table 2 should correspond quite closely to the true parameters of the total population that has been described previously. For example, the magnitude of the VC and QC means for the total population would be expected to lie within one-half standard test score unit (± 00.50) of the sample means above, based on a 95 percent confidence interval (.05 level of significance). Similarly, the means for the individual populations of males and females would lie within three-quarters of a score unit (± 00.75) of the sample means provided above by sex. The overall GPA mean for the population should be within ± 00.03 of the mean computed on this sample. GPA means for the populations of males and females should lie within ± 00.05 of the sample means that are presented.

A comparison of these total sample results with those obtained on traditional WPC participants may be made by referring to the bottom set of rows in the table, which presents data generated on an independent group of 1,600 juniors randomly drawn from the 20,000+ students who were <u>not</u> included in the representative sample and who had <u>voluntarily</u> participated in the WPC Program during the spring of

TABLE 2. MEANS AND STANDARD DEVIATIONS OF WPC VERBAL COMPOSITE, QUANTITATIVE COMPOSITE, AND OVERALL GPA OF STUDENTS ACCORDING TO THEIR EDUCATIONAL GOAL

	MALE (748)			FEMALE (814)			TOTAL (1562)		
EDUCATIONAL GOAL	VC	QC	GPA	VC	QC	GPA	VC	QC	GPA
High School Diploma	37.78	40.96	2.16	37.87	36.48	2.22	37.83	38.77	2.19
	(7.97)	(8.90)	(.74)	(6.62)	(6.69)	(.49)	(7.30)	(8.17)	(.63)
Vocational Technical Program (less than 2 years)	39.24	41.61	2.25	42.60	41.08	2.54	40.89	41.35	2.39
	(6.81)	(7.36)	(.61)	(6.95)	(8.37)	(.63)	(7.07)	(7.85)	(.63)
Two Year College Degree	39.54	41.62	2.22	41.58	41.48	2.54	40.85	41.53	2.43
	(6.74)	(8.05)	(.58)	(8.44)	(7.64)	(.67)	(7.92)	(7.77)	(.66)
Start at 2 Year College- Transfer for 4 Year Degree	42.22	46.68	2.49	44.49	44.80	2.77	43.42	45.69	2.64
	(8.13)	(9.46)	(.62)	(8.69)	(9.44)	(.62)	(8.49)	(9.48)	(.64)
Start at 4 Year College for a Four Year Degree	47.01	53.21	2.84	49.10	49.47	3.04	48.09	51.28	2.94
	(9.76)	(10.89)	(.68)	(8.84)	(10.31)	(.69)	(9.34)	(10.74)	(.69)
One or Two Years of Graduate Study	53.47	55.92	2.95	50.00	49.57	2.89	51.76	52.79	2.92
	(10.70)	(11.03)	(.70)	(12.48)	(13.29)	(.82)	(11.66)	(12.53)	(.75)
Professional Level Degree (Phd, MD, LLB, JD, etc.)	50.28	55.10	3.06	51.61	51.96	3.12	50.93	53.56	3.09
	(10.19)	(12.08)	(.65)	(10.27)	(10.83)	(.68)	(10.23)	(11.57)	(.66)
Total Sample	44.27	48.50	2.61	45.70	45.62	2.80	45.02	47.00	2.71
	(10.01)	(11.44)	(.70)	(9.75)	(10.36)	(.67)	(9.90)	(11.08)	(.69)
Self-Selected Sample of 1600 Voluntary Participants	49.09	53.94	2.99	49.67	50.03	3.11	49.40	51.82	3.06
	(10.17)	(10.36)	(.61)	(9.61)	(9.99)	(.53)	(9.87)	(10.34)	(.57)

1985. Notice that the test score and GPA means for the representative sample are about half a standard deviation lower than those for traditional WPC participants, irrespective of the variable measured or the sex of the students.

Some of the data in Table 2 are illustrated in graphic form in Figures D, E, and F. The column headings in these figures include asterisks to indicate that these are highly abbreviated versions of the final educational goal titles listed in the original table. For example, HS is used to indicate "high school diploma only," VT is used to indicate "completion of a vocational-technical program less than two years in length," and so on.

Statistics provided in the total sample row demonstrate that the mean Quantitative Composite (QC) score for males is higher than the mean for females (48.50 vs. 45.62). Figure D illustrates that this sex difference favoring males exists at all educational goal levels and is greatest among those students whose goals are "high school diploma only" (HS) and "one or two years of graduate study" (GRD). It is smallest for those whose goal is to obtain a two-year college degree (2YD). (The male and female graph lines are identified in Figure D by "M" and "F", respectively.)

Overall, females have higher mean Verbal Composite (VC) scores than males (45.70 vs. 44.27). Figure E shows that this sex difference exists for students at all educational goal levels except "one or two years of graduate study" (GRD). A rather substantial reversal occurs for that particular group. The female advantage in VC scores is greatest among those students whose final goal is to complete a vocational-technical program less than two years in length (VT).

Females also have higher mean GPAs than males. Figure F illustrates that the GPA trends by sex closely parallel the trends observed for VC scores, with female GPAs higher at every educational goal level except "one or two years of graduate study."

Figures D, E, and F graphically display the positive relationships which exist among students' stated educational goals and their test scores and GPAs. An examination of the means in the three total columns in Table 2 reveals that exceptions to these trends occur in only three instances. First, no significant differences exist on any of the three measures between students who plan to complete a vocational-technical program less than two years in length (VT) and those planning to earn a two-year college degree (2YD). Second, overall GPAs are the same for those who plan to start at a four-year college to earn a four-year degree (4YD) and for those who plan to complete one or two years of graduate study (GRD). Third, Verbal Composite scores are higher for those who plan to complete one or two years of graduate study than for those who plan to earn a professional level degree, such as an M.D. or Ph.D.

FIGURE D. MEAN WPC QUANTITATIVE COMPOSITE SCORES
ACCORDING TO EDUCATIONAL GOAL AND SEX

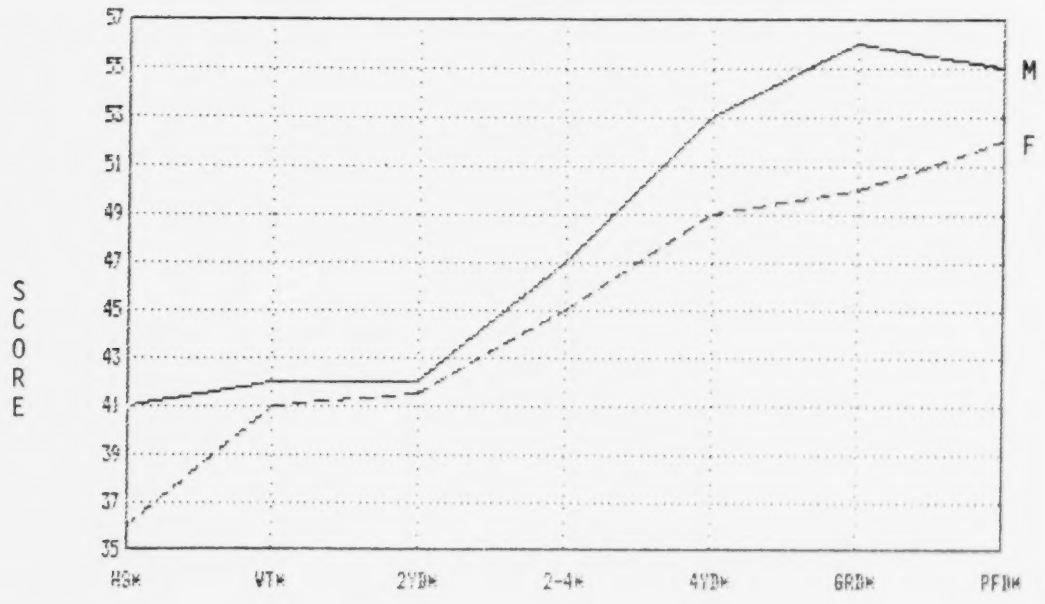


FIGURE E. MEAN WPC VERBAL COMPOSITE SCORES
ACCORDING TO EDUCATIONAL GOAL AND SEX

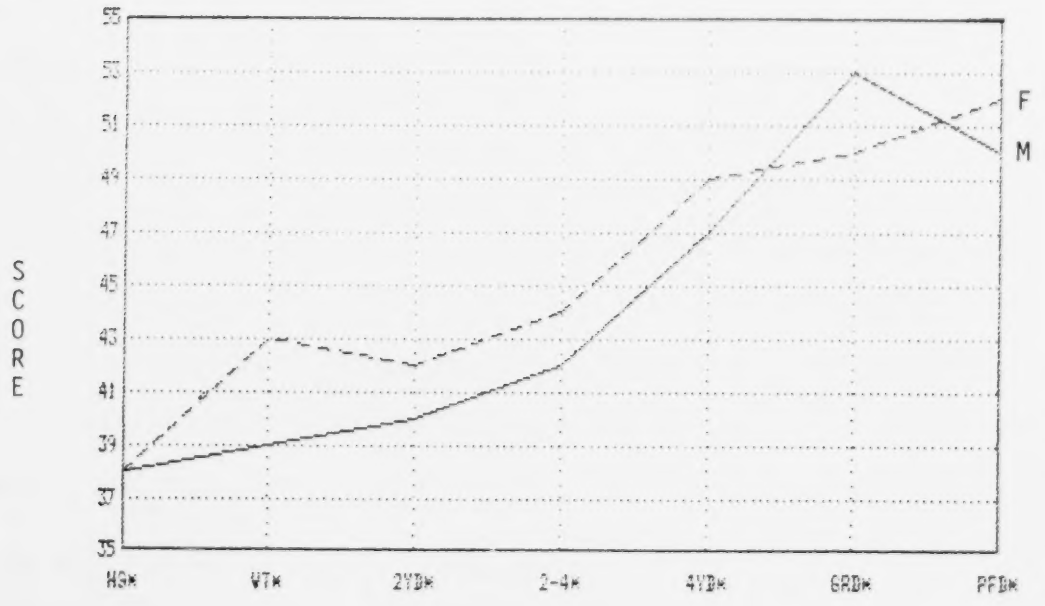
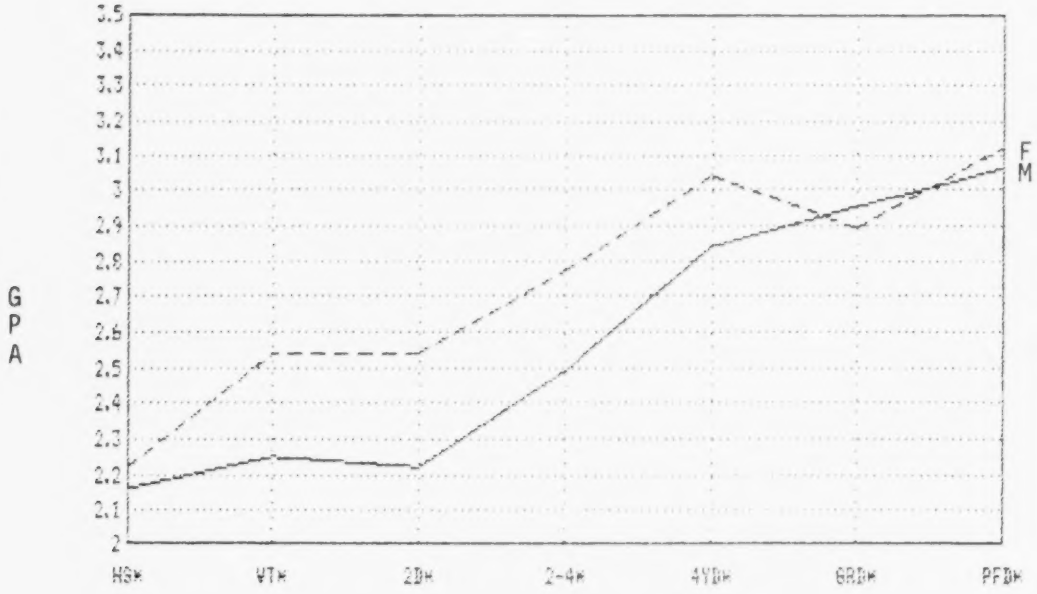


FIGURE F. OVERALL HIGH SCHOOL GPA
ACCORDING TO EDUCATIONAL GOAL AND SEX



High School GPAs by Subject Area

Mean high school GPAs by subject area and the relationships of these classroom achievement measures to the variables of sex and educational goal may be explored through the data presented in Table 3 and Figure G. The six sets of academic subject area GPAs and the overall GPAs across subject areas are labeled in the column of headings on the extreme left. Within each area, a row of means is provided for males (M), females (F), and the total group (T). Each column represents data for those students who have indicated a particular educational goal. (Refer back to the left column in Table 2 as needed for interpreting the meaning of these educational goal abbreviations.)

As shown in the total column on the right in Table 3, the mean GPAs for this representative sample of students are lowest in math (2.31) and natural science (2.36) for grades 9-11 combined. Elective courses yield by far the highest GPAs (3.10). The slight differences in magnitude between these means and the corresponding medians (50th percentile values) presented in Table 1 are due to nonsymmetry in the data distributions.

The mean GPAs by sex in the total column demonstrate that the average grades earned by females are higher than those earned by males in every academic subject area. These sex differences by subject area are illustrated graphically in Figure G. Notice that the greatest grade discrepancies occur in the foreign languages and English areas.

A total of 49 grade comparisons by sex, educational goal, and subject area are presented within the body

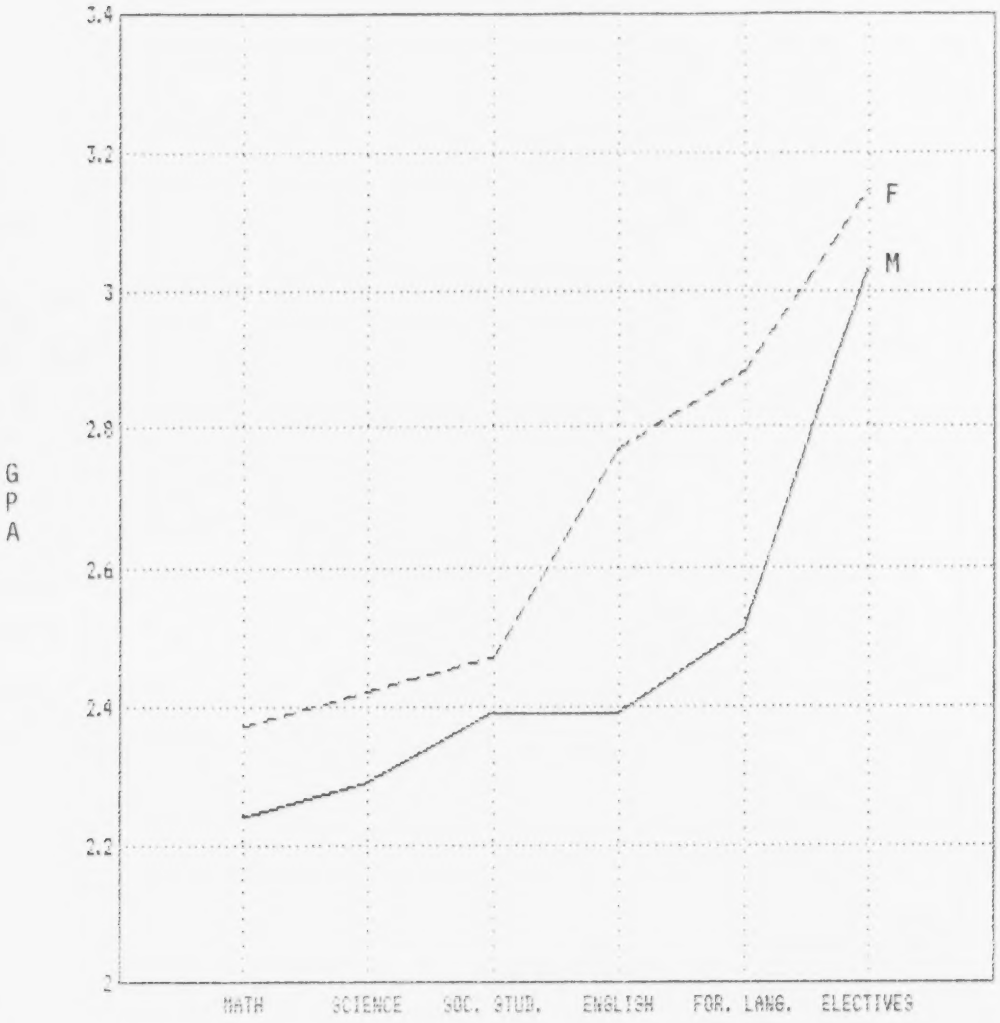
of Table 3. Male grades are substantially higher than females in only two of these instances. Both of these reversals occur within the group whose educational goals are characterized by one to two years of graduate study and are associated with the areas of natural science and social science.

One of the more intriguing outcomes of this study is presented by the contrast between math test scores and math grades by sex. Although the average grades earned by females in math courses are higher than the average grades earned by their male classmates (2.37 vs. 2.24), the mean Quantitative Composite (QC) test scores received by these same students are significantly lower for females than for males (45.62 vs. 48.50).

TABLE 3. MEAN HIGH SCHOOL GPAs (GRADES 9-11) IN SEVEN SUBJECT AREAS ACCORDING TO EDUCATIONAL GOAL AND SEX

	Sex	H S Dip	V/T < 2 Yrs	2 Yr Deg	2 Yr Tran 4 Yr	Strt 4 Yr	1-2 Yrs Grad	Prof Deg	Total
	M	1.88	1.86	1.84	2.27	2.67	2.82	2.96	2.39
English	F	2.10	2.43	2.42	2.74	3.08	2.93	3.17	2.77
	T	1.99	2.14	2.21	2.52	2.88	2.88	3.07	2.59
	M	1.81	1.93	1.91	1.99	2.49	2.57	2.79	2.24
Math	F	1.95	2.08	2.16	2.32	2.52	2.72	2.68	2.37
	T	1.88	2.00	2.07	2.16	2.51	2.64	2.73	2.31
	M	1.73	1.88	1.89	2.05	2.57	2.69	2.92	2.29
Natural Science	F	1.67	2.20	2.18	2.33	2.66	2.37	2.88	2.42
	T	1.70	2.03	2.08	2.20	2.62	2.53	2.90	2.36
	M	1.77	1.84	1.82	2.24	2.74	2.89	2.98	2.39
Social Science	F	1.76	2.18	2.12	2.55	2.93	2.68	3.02	2.57
	T	1.76	2.01	2.02	2.40	2.84	2.78	3.00	2.48
	M	1.60	2.01	1.98	2.16	2.68	2.91	2.87	2.51
Foreign Language	F	1.97	2.53	2.48	2.72	3.17	3.11	3.20	2.88
	T	1.82	2.35	2.36	2.47	2.95	3.00	3.04	2.72
	M	2.56	2.69	2.68	3.02	3.25	3.22	3.42	3.04
Electives	F	2.66	2.89	2.89	3.14	3.38	3.11	3.42	3.15
	T	2.61	2.79	2.82	3.08	3.32	3.17	3.42	3.10
	M	2.16	2.25	2.22	2.49	2.84	2.93	3.06	2.61
Overall	F	2.22	2.54	2.54	2.77	3.04	2.89	3.12	2.80
	T	2.19	2.39	2.43	2.64	2.94	2.92	3.09	2.71

FIGURE G. MEAN SUBJECT AREA GPAs ACCORDING TO SEX



Students' Final Educational Goals

The percentages of male, female, and all (total) students who indicated which educational goal category matched their personal objectives are shown in Table 4. Male and female goals appear to be quite similar, except that about 50 percent more females than males perceive a two-year college degree as constituting their final educational goal (14% vs. 9%).

A total of 93 percent of these students responded that their final educational goal included some type of formal vocational or academic training beyond high school. Projecting these representative sample results to the current population of approximately 50,000 Washington students who annually earn high school diplomas, we would expect to find that 93 percent, or 46,500, of these individuals are enrolling in some type of college or institute. This is obviously not the case. Enrollment figures compiled by the Coordinating Board for Higher Education and the Friends of Higher Education indicate that only about 24,000 to 26,000 (including out-of-state enrollees) are presently pursuing these objectives within 12 months of graduation. The remaining 20,000 or more students are either purposely delaying their postgraduation plans until a later date or are providing us with rather vivid evidence that large numbers of Washington high school juniors entertain unrealistic educational goals and career plans.

TABLE 4. PERCENTAGE OF STUDENTS PARTICIPATING IN THE STATEWIDE RANDOM SAMPLE ACCORDING TO SEX AND EDUCATIONAL GOAL

Educational Goal	Percent Male	Percent Female	Percent Total
High School Diploma	7	6	7
Vocational-Technical Program (Less than 2 years)	13	12	12
Two Year College Degree	9	14	12
Start at 2 Year College-Transfer for Four Year Degree	22	23	22
Start at 4 Year College for a Four Year Degree	26	25	26
One or Two Years of Graduate Study	5	5	5
Professional Level Degree	17	15	16

Comparisons With National Scholastic Aptitude Test (SAT) Data

Measurement specialists representing the College Board and Educational Testing Service are the first to warn potential users that SAT state and national norms have very limited meaning. This is because the percentage of SAT participants varies widely from state-to-state and these normative tables are based on self-selected samples of students who, for the most part, plan to apply to those specific institutions that include this particular examination among their admission requirements. Despite these limitations, many educators find the comparisons of local results with these norms to be interesting.

WPC routinely generates extremely accurate SAT score estimates for each participant as a service to the student and to those institutions that use the SAT as an admissions tool. For this comparison, an attempt was made to emulate as closely as possible the characteristics of those college-bound students across the country who choose to participate in the SAT. That subgroup of students in our representative Washington sample who indicated that their educational goals were to start at a four-year institution to earn either a baccalaureate or some higher degree (a combination of the three highest educational goal categories) were first identified. The mean estimated SAT scores were then computed for this subgroup. These results are provided in Table 5, along with the most recent national SAT norms. No test score differences of any practical consequence exist between this special Washington subgroup and the national sample of self-selected SAT participants.

High School Credits

A routine part of WPC's complex system for standardizing and summarizing high school records consists of the conversion of all students' credits shown on their official transcripts into a common, 90-contact hour base. Average standardized credits in grades 9-11

TABLE 5. ESTIMATED MEAN SAT VERBAL AND MATHEMATICAL SCORES FOR WASHINGTON STUDENTS WHO PLAN TO START AT A FOUR-YEAR COLLEGE TO EARN A BACCALAUREATE OR HIGHER DEGREE

	Male		Female		Total	
	V	M	V	M	V	M
Washington	439	498	432	458	436	478
National	437	499	425	452	431	475

for this representative sample are presented in Table 6, classified according to subject area, sex, and educational goal.

The total column on the right in Table 6 provides the average numbers of credits earned by area for males (M), females (F), and by the total group of students (T). The largest sex discrepancy is observed in foreign languages. This subject is more popular with females in all but one of the educational goal subgroups. Sex differences in language credits are especially great for those students who aspire to complete vocational training programs (V/T and 2 Yr Deg).

The average number of elective credits earned by students is inversely related to the level of their educational goals. In all of the more academic subjects, however, the number of credits earned increases as educational goals become higher.

Not shown in this report is an additional analysis conducted by WPC concerning the relationship of sex with the number of credits earned by type and level of math course. It had been hypothesized that the existence of some relationship among these variables might offer an explanation for the inconsistency observed previously between sex, math test scores, and math grades. No such relationship was found. The average number of credits earned in various levels of math courses did not differ significantly by sex.

TABLE 6. AVERAGE NUMBER OF HIGH SCHOOL CREDITS IN VARIOUS SUBJECT AREAS ACCORDING TO EDUCATIONAL GOAL

	Sex	H S Dip	V/T < 2 Yrs	2 Yr Deg	2 Yr Tran 4 Yr	Strt 4 Yr	1-2 Yrs Grad	Prof Deg	Total
English	M	5.9	5.7	5.8	5.9	6.2	6.6	6.5	6.1
	F	6.4	6.2	6.3	6.4	6.7	7.0	6.5	6.5
	T	6.1	6.0	6.2	6.2	6.5	6.8	6.5	6.3
Math	M	4.0	3.8	4.2	5.0	6.0	6.1	6.6	5.3
	F	4.1	4.0	4.4	4.8	5.6	5.9	6.0	5.1
	T	4.0	3.9	4.3	4.9	5.8	6.0	6.3	5.2
Science	M	2.7	2.5	2.8	3.1	4.1	4.1	4.3	3.5
	F	2.7	2.7	2.8	3.1	3.6	3.4	4.2	3.3
	T	2.7	2.6	2.8	3.1	3.8	3.7	4.3	3.4
Soc. Stud.	M	4.0	4.2	4.0	4.6	4.4	4.7	4.6	4.4
	F	4.2	4.4	4.4	4.6	4.7	4.7	4.8	4.6
	T	4.1	4.3	4.2	4.6	4.6	4.7	4.7	4.5
For. Lang.	M	0.8	0.8	0.8	2.3	3.2	3.6	3.5	2.3
	F	1.4	2.1	2.1	2.7	3.9	3.3	4.2	3.0
	T	1.0	1.4	1.6	2.5	3.6	3.4	3.9	2.7
Electives	M	16.1	16.5	16.0	14.0	12.2	12.2	11.3	13.8
	F	14.8	15.4	15.4	13.8	12.4	11.5	10.9	13.5
	T	15.5	16.0	15.6	13.9	12.3	11.9	11.1	13.7
Overall	M	33.4	33.7	33.6	34.9	36.1	37.1	36.9	33.4
	F	33.6	34.9	35.4	35.3	36.9	35.8	36.6	36.0
	T	33.5	34.3	34.8	35.1	36.5	36.5	36.8	35.7

Vocational Interest Inventory Scores

The Vocational Interest Inventory published by Western Psychological Services is included in the regular WPC Test battery and was also administered to this representative sample of juniors. Eight interest areas are assessed by this instrument. These areas are listed as row headings in Table 7. Each entry in Table 7 represents standardized average interest scores according to the sex and educational goal of the respondent group. Although career guidance specialists will find this normative information useful, these interest scores are highly specialized kinds of measures that cannot easily be discussed without including a great amount of background information and detail.

TABLE 7. AVERAGE VOCATIONAL INTEREST INVENTORY SCORES ACCORDING TO EDUCATIONAL GOAL

	Sex	H S Dip	V/T < 2 Yrs	2 Yr Deg	2 Yr Tran 4 Yr	Strt 4 Yr	1-2 Yrs Grad	Prof Deg	Total
	M	52.9	50.7	49.4	50.5	49.5	45.3	45.9	50.2
Service	F	54.8	53.9	52.8	54.2	52.7	51.2	50.0	53.3
	T	53.8	52.3	51.6	52.4	51.2	48.2	47.9	51.8
	M	51.5	49.4	49.3	51.7	52.5	52.3	52.3	52.3
Sales	F	49.6	50.8	50.7	50.8	53.8	51.7	50.2	51.9
	T	50.6	50.1	50.2	51.2	53.2	52.0	51.3	52.1
	M	49.1	48.4	49.3	49.7	49.3	49.1	49.2	50.0
Organization	F	52.9	56.6	55.7	54.0	52.7	52.8	49.9	54.0
	T	51.0	52.4	53.4	52.0	51.0	50.9	49.6	52.1
	M	50.6	54.3	49.7	51.8	51.9	50.8	50.0	52.5
Technical	F	48.1	49.0	46.8	47.4	46.9	47.4	44.1	47.3
	T	49.4	51.7	47.8	49.5	49.3	49.2	47.1	49.8
	M	49.3	51.8	46.3	48.1	45.8	48.1	42.5	47.7
Outdoor	F	44.8	42.4	42.3	44.0	43.0	43.4	41.3	43.2
	T	47.1	47.2	43.7	46.0	44.3	45.7	41.9	45.4
	M	45.8	44.1	43.9	47.8	48.2	50.0	54.2	49.0
Science	F	47.6	45.6	47.0	48.4	48.4	49.7	55.6	49.3
	T	46.7	44.9	45.9	48.1	48.3	49.9	54.8	49.1
	M	49.5	45.0	44.8	49.1	50.1	56.3	54.7	50.6
Gen. Cultural	F	47.1	44.9	47.0	49.0	50.3	48.5	53.5	49.5
	T	48.3	44.9	46.2	49.0	50.2	52.4	54.1	50.0
	M	45.9	46.4	46.1	48.7	48.9	48.0	48.8	48.9
Arts & Enter.	F	49.4	51.2	50.4	51.0	53.3	55.4	51.9	52.2
	T	47.6	48.7	48.9	50.0	51.2	51.6	50.3	50.6

Student Work Experience

Table 8 provides information concerning the work experience reported by Washington juniors in the representative sample. The five work experience categories explored are listed in the abbreviated row titles on the left, beginning with "I have held a regular part-time job while attending school." The percentages of students indicating each type of experience are given within the table, broken down by sex and educational goal.

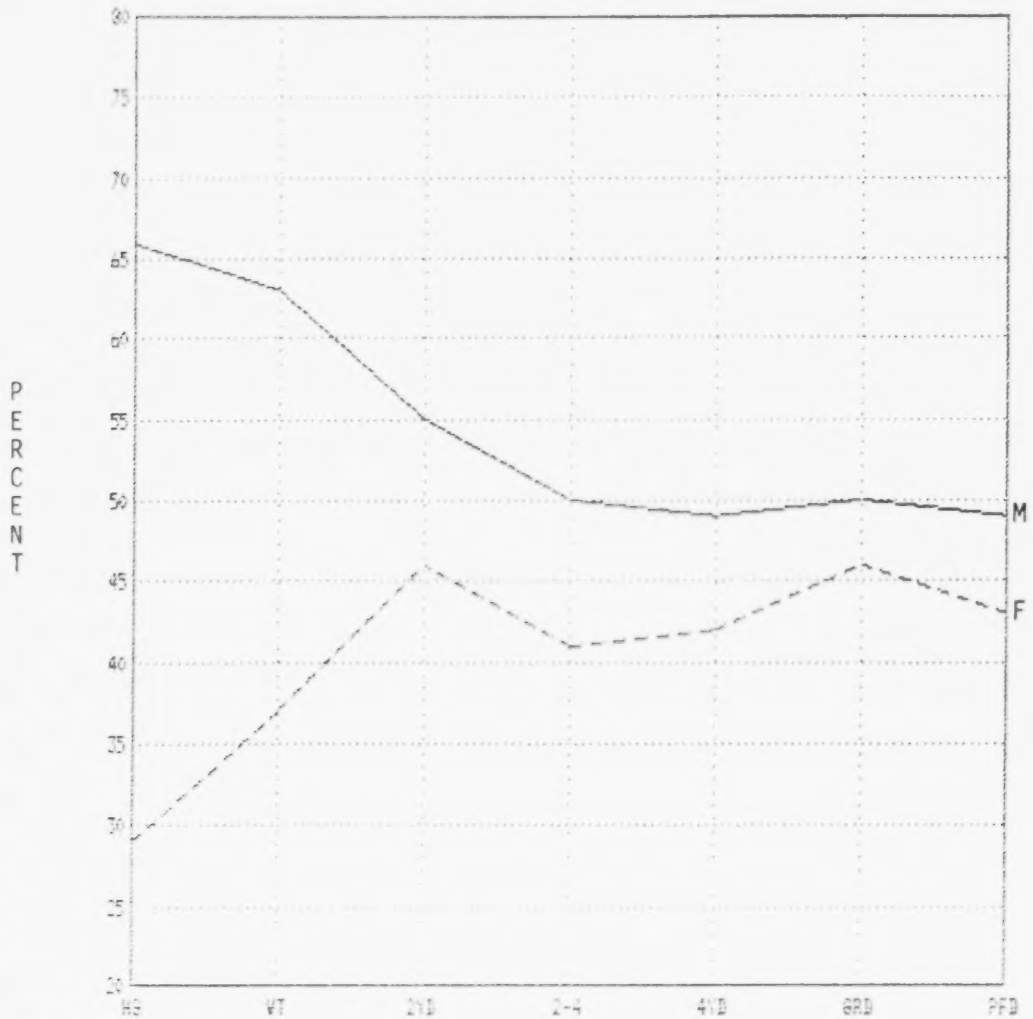
Although overall average percentages across educational goal are not provided in Table 8, it is apparent that over 60 percent of these students have held a part-time job at one time or another while they were attending school. This type of work experience was reported by more males than females and was noted most frequently among those students whose goal was to enroll in a two-year transfer program after graduation (2 Yr Tran 4 Yr).

Nearly 50 percent of these students also report that they have held a full-time summer job prior to their junior year in school. Figure H graphically displays the interesting relationships between full-time summer job experience and the sex and educational goal variables. For males, full-time work experience tends to decrease sharply as goals increase through the "two-year transfer program" category and then levels off around the 50 percent range. The opposite trend is observed for females across the first three goal categories.

TABLE 8. PERCENTAGE OF STUDENTS WITH VARYING TYPES OF WORK EXPERIENCE ACCORDING TO EDUCATIONAL GOAL

	Sex	H S Dip	V/T < 2 Yrs	2 Yr Deg	2 Yr Tran 4 Yr	Strt 4 Yr	1-2 Yrs Grad	Prof Deg
Held Regular Part-time Job	M	66	65	60	74	65	71	56
	F	54	54	61	61	53	57	56
	T	60	60	61	67	59	64	56
Held Full-time Summer Job	M	66	63	55	50	50	50	49
	F	29	37	46	41	42	46	43
	T	47	50	49	45	45	48	46
Partic.in Work-study Dist. Educucation or Coop. Work Progras	M	13	13	20	14	7	5	17
	F	6	20	18	19	10	24	15
	T	10	17	19	17	8	14	16
Earned Money Selling Goods or Services	M	37	20	32	36	39	41	46
	F	19	26	36	28	30	46	30
	T	28	23	35	32	35	43	38
Supervised the Work of Others	M	26	27	23	22	17	21	33
	F	8	21	21	15	15	17	19
	T	17	24	22	19	16	19	26

FIGURE H. PERCENT OF MALES AND FEMALES WHO HELD A FULL-TIME SUMMER JOB ACCORDING TO EDUCATIONAL GOAL



EDUCATIONAL GOAL

Enrollment in Advanced Placement, Accelerated, and Honors Programs

As indicated in Table 9, enrollment in advanced placement, accelerated, or honors programs through grade 11 occurs most frequently in the subject areas of English (26%) and math (21%). Enrollment in such programs within all subject areas is strongly related to educational goals, with the percentages increasing as the educational goals of students become higher.

Sex differences are again prominent in these data. Between 60 percent and 70 percent more males than females have participated in these special types of programs in math, natural science, and social science areas. Slightly more females than males, on the other hand, report enrollment in such programs in English and in foreign languages.

TABLE 9. PERCENTAGE OF STUDENTS INDICATING ENROLLMENT IN ADVANCED PLACEMENT, ACCELERATED, OR HONORS PROGRAMS IN VARIOUS SUBJECT AREAS ACCORDING TO SEX AND EDUCATIONAL GOAL

	Sex	% H S Dip	% V/T < 2 Yrs	% 2 Yr Deg	% 2 Yr Tran 4 Yr	% Strt 4 Yr	% 1-2 Yrs Grad	% Prof Deg	% Total
English	M	7	4	7	17	30	45	46	24
	F	15	15	14	25	37	43	44	28
	T	11	9	11	31	34	44	45	26
Mathematics	M	21	13	6	19	28	42	43	25
	F	2	9	7	15	22	31	33	18
	T	12	11	8	17	25	37	38	21
Natural Science	M	2	8	8	11	23	16	32	17
	F	2	7	2	8	9	23	26	10
	T	2	7	4	9	16	19	29	13
Social Science	M	7	9	7	6	12	21	28	13
	F	9	2	3	8	11	23	16	9
	T	8	5	4	7	11	22	22	11
Foreign Language	M	2	9	5	8	14	11	18	11
	F	6	8	7	8	19	20	21	13
	T	4	8	7	8	17	15	19	12

Participation in Extracurricular Activities

The percentages of students reporting participation in various extracurricular activities are shown in Table 10 according to sex and educational goal. Nearly 50 percent of the students in this representative sample have participated in some form of varsity athletics. Those who plan to start at a four-year college to earn a baccalaureate degree (Strt 4 Yr) are most likely to be involved in varsity athletic activities (males, 76%; females, 53%).

The tendency for students with higher educational goals to participate more frequently in extracurricular activities is strong in all but a few activities, such as vocal music. In general, females report more involvement in extracurricular activities than males.

TABLE 10. PERCENTAGE OF STUDENTS INDICATING PARTICIPATION IN VARIOUS EXTRACURRICULAR ACTIVITIES ACCORDING TO SEX AND EDUCATIONAL GOAL

	Sex	% H S Dip	% V/T < 2 Yrs	% 2 Yr Deg	% 2 Yr Tran 4 Yr	% Strt 4 Yr	% 1-2 Yrs Grad	% Prof Deg	% Overall
Student government	M	2	9	5	10	21	45	36	18
	F	8	8	20	20	35	31	36	22
	T	5	8	15	15	29	38	36	22
Publications (newspaper, yearbook, etc.)	M	9	6	8	19	11	32	19	14
	F	17	18	17	22	21	28	19	20
	T	13	12	14	21	16	30	19	17
Instruental susic	M	19	15	14	25	25	29	30	24
	F	10	14	19	25	30	36	28	24
	T	15	15	17	25	28	32	29	24
Vocal susic	M	15	6	12	15	11	16	13	12
	F	31	20	24	26	26	19	25	25
	T	23	13	20	21	19	18	19	19
Debate	M	4	2	2	5	6	11	15	7
	F	2	1	7	6	8	17	11	7
	T	3	2	5	6	7	14	13	7
Drasa, theater	M	16	6	12	19	11	29	20	15
	F	15	21	23	24	29	39	34	26
	T	15	14	19	22	20	34	27	21
Varsity athletics	M	44	35	40	59	76	55	53	56
	F	21	24	38	40	53	36	47	41
	T	33	30	39	49	64	46	50	48
Intrasural athletics	M	20	32	38	51	47	43	44	43
	F	21	20	35	30	32	33	27	29
	T	21	26	36	40	39	38	36	36
Political organizations	M	2	5	3	8	10	26	24	11
	F	4	2	4	5	9	6	17	7
	T	3	4	4	6	10	16	21	9
Racial or ethnic organizations	M	0	0	3	3	6	11	6	4
	F	8	4	5	2	7	6	8	5
	T	4	2	4	3	6	8	7	5
Religious clubs	M	9	4	7	13	19	18	24	15
	F	13	12	12	25	23	31	27	21
	T	11	8	10	19	21	24	25	18
Departsental clubs	M	2	12	13	19	18	34	31	19
	F	23	28	31	27	35	56	36	32
	T	13	20	25	23	27	44	33	26
Radio or TV	M	9	8	7	10	7	11	10	8
	F	2	2	4	3	4	3	3	4
	T	5	5	5	6	5	7	7	6
Fraternity or sorority	M	2	0	3	3	4	3	3	3
	F	0	1	2	3	1	3	3	2
	T	1	1	2	3	2	3	3	2
Special interest groups (drill teas, ski club, sailing club, etc.)	M	33	32	18	33	43	50	50	38
	F	38	46	50	52	63	64	53	53
	T	36	39	39	43	53	57	51	46
Campus or community service organizations	M	7	8	10	20	18	24	34	19
	F	17	24	19	28	38	31	40	30
	T	12	16	16	24	28	27	37	25

College Choice Factors

Students whose educational goals include attending some type of college or institute (93% of the total sample) were asked to respond to a series of registration questions regarding college selection. As indicated in item 1 of Table 11, 23% of these students believed that they would enroll in a state research university such as the University of Washington or Washington State University after graduation. Projecting these representative sample statistics to the current population of Washington high school graduates, this result implies that nearly 11,000 students [23% x (93% x 50,000)] each year entertain plans to enroll in a major public research university.

In the first set of questions under item 2 of Table 11, the students were asked to rate each of a series of factors in terms of its importance to them in college selection. Notice that the factor relating to the quality of instruction and teaching facilities was rated the most important by a wide margin. The attractiveness of the campus and the quality of the institution's intercollegiate athletics teams were judged to be the least important factors in selecting a college.

In the second set of questions under item 2, students indicated their preferences for institutions with various characteristics. Certain institutional characteristics were clearly dominant. For instance, students displayed a strong preference for medium-sized institutions that are located in medium-sized cities. A special study is being prepared by WPC which analyzes these college choice factors in greater detail using results on the entire population of WPC participants who perceive themselves as being college bound.

TABLE 11. COLLEGE CHOICE FACTORS

1. After graduation, I will probably enroll in the following TYPE of institution in Washington or in another state:

11%	Vocational-technical institute
21%	Two-year community college
4%	Business college
9%	Four-year independent (private) college or university
12%	Four-year state college or regional university (CWU, EWU, WWU, etc.)
23%	State university (UW, WSU, etc.)
3%	Other
17%	Undecided

2. Please rate each of the factors below as to whether it is Very Important (V), Somewhat Important (S), or Unimportant (U) in your selection of a college.

Percent V	S	U	
57	38	5	The cost of tuition and fees
15	64	21	The attractiveness of the campus buildings and grounds
46	46	8	The overall prestige, status, and academic reputation that is associated with the institution
54	37	9	The level of financial assistance offered to me through scholarships, grants, co-op programs, work-study or other part-time jobs, etc.
48	41	11	The degree to which I think I can successfully compete academically with other students at the institution
25	53	22	The number of extracurricular activities offered by the institution in which I can be a participant (musical organizations, theater groups, special interest groups, intramural or intercollegiate sports teams, etc.)
23	59	18	The number and quality of extracurricular events offered on campus which I will be able to attend (lectures, concerts, plays, sports events, etc.)
58	38	4	The quality of the student services provided (job placement, counseling and advising, libraries, study and living facilities, etc.)
49	46	5	The degree to which I feel the instructors, advisors, and administrators at the college will take a personal interest in me
16	44	40	The quality of the college's intercollegiate athletic teams (football, basketball, soccer, hockey, etc.)
44	50	6	The impressions I form through reading the descriptive materials supplied by the college and by listening and talking to college representatives during career days, college fairs, or during visits to the campus
79	18	3	The quality of instruction and the teaching or training facilities available in the area in which I will probably major or specialize

Percent V	Percent S	Percent U	
40	52	8	The size of the classes, lectures, and lab sessions (i.e., student-to-teacher ratio)
44	51	5	The degree of intellectual stimulation I will experience through association with the instructors and with other students at the college

2. (continued) Complete the sentence below by selecting A, B, or C for each of the items that follow.

I would prefer to attend an institution . . .

Percent		
15	A.	that is small in size (less than 2,000 students).
68	B.	that is medium in size (2,000 to 10,000 students).
17	C.	that is large in size (over 10,000 students).
39	A.	that is located within easy commuting distance of my home.
37	B.	that is located 50 to 150 miles from my home.
24	C.	that is located over 150 miles from my home.
9	A.	that is located in a small town or city.
67	B.	that is located in a medium-sized city.
24	C.	that is located in a large metropolitan area.
29	A.	that emphasizes the development of specific vocational and professional job skills.
33	B.	that emphasizes a general, well-rounded education for all students.
38	C.	that places equal emphasis on the development of specific job skills and general education.
11	A.	in which the student body is made up almost entirely of people who share my background, interests, and beliefs.
25	B.	in which about half of the student body is made up of people who share my background, interests, and beliefs.
64	C.	in which the student body reflects a diverse mixture of backgrounds, interests, and beliefs.
13	A.	that is strongly oriented toward the arts and humanities.
18	B.	that is strongly oriented toward the sciences and technology.
69	C.	that has a balanced curriculum with respect to the arts and humanities vs. science and technology.

Percentile Equivalents of WPC Combined Composite Scores

Percentile equivalents of WPC Combined Composite scores are presented in Table 12. A Combined Composite score is defined as the simple sum of a student's Verbal Composite (VC) and Quantitative Composite (QC) scores, or VC + QC. A specific Combined Composite score can usually be obtained by numerous VC and QC score combinations.

WPC Combined Composite scores have been used by the State Board of Education as a benchmark index in establishing minimum competency requirements for entrance to teacher education programs in Washington. Currently, a combined score of 80 is the minimum acceptable score for admission to a teacher preparation program. The scores presented in Table 12 were generated on the statewide, random sample of 1,562 juniors tested during March, 1985. Thus, the normative information provided should accurately represent the entire population of all Washington public school juniors.

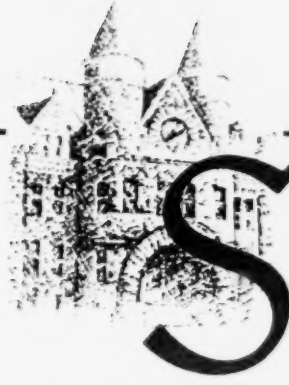
The interpretation of percentile equivalents was discussed in the introduction to Table 1. The percentile equivalent associated with a particular score indicates the percentage of students whose scores are lower than the given value. For example, a percentile equivalent of 75 is associated with a Combined Composite score of 105, indicating that the scores of 75 percent of these students were less than 105.

Median (average) scores are equivalent to the 50th percentile. As shown in Table 12, the median score earned by this representative sample of juniors is 90. A combined score of 80 corresponds to a percentile equivalent in the 31 to 34 range.

The algebraic mean of these Combined Composite scores is 93. This slightly higher magnitude of the mean as compared to the median reflects the small degree of positive skewness inherent in the score distribution for this sample.

TABLE 12. PERCENTILE EQUIVALENTS OF WPC COMBINED COMPOSITE (VC + QC) SCORES

Percentile Equivalent	VC + QC Score	Percentile Equivalent	VC + QC Score
99	138	40	84
95	126	35	82
90	120	30	79
85	114	25	77
80	109	20	74
75	105	15	71
70	102	10	68
65	99	5	64
60	96	1	60
55	93		
50	90	Mean	93
45	87	S.D.	19



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